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COMPARISON OF THE FINANCIAL SITUATION OF LOCAL GOVERNMENT UNITS BEFORE AND DURING THE COVID PANDEMIC

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Purpose: The aim of this article was to determine the financial situation of various levels of local government units during the COVID-19 pandemic in comparison to selected periods from previous years.
Design/methodology/approach: To achieve the aim, the authors used one of the methods of multidimensional statistical analysis – the TOPSIS technique. The study included the most important indicators of the financial situation of local government units at all levels (voivodeships, poviats and communes). The authors used data from the Polish Ministry of Finance.
Findings: According to the study results, the lower the level of local government, the greater the share of current income in total income, current transfers per capita, operating surplus per capita and total liabilities per capita. However, a negative trend was observed as well: the share of investment expenditure in total expenditure decreased at all levels of local government units.
Research limitations/implications: An important limitation of the article was the inability to reach the managers of LGUs in order to learn their opinions on the functioning of these entities during the COVID-19 pandemic.
Practical implications: A proportional decrease of investment expenditure in the overall expenditure of local government units may lead to deteriorated financial situation of enterprises that were beneficiaries of these orders.
Social implications: A smaller proportion of investment expenditure in total expenditure means less investment for the local community (usually infrastructural) and, consequently, slower development of local government units.
Originality/value: The originality of the study is based on the fact that it was conducted comprehensively and covered all communes, poviats and voivodships in Poland in 2018-2020.

Keywords: LGUs, financial situation, COVID-19, TOPSIS technique.

Category of the paper: Research paper.

1. Introduction

Local government units (LGUs) are independent and autonomous entities that perform numerous tasks related to social and technical infrastructure, as well as order and security. The spread of the COVID-19 pandemic in 2020 and consequently the economic lockdown introduced by the government, which limited people's ability to move freely, affected the finances of both enterprises and LGUs. On the other hand, once the restrictions were lifted, some entrepreneurs were able to quickly make up for their losses. LGUs have taken many discretionary decisions to mitigate the negative effects of COVID-19. As a consequence of the pandemic, the profitable part of the finances of LGUs was disrupted.

Loss of liquidity and insolvency of LGUs may lead to their liquidation, which causes a number of negative consequences for both the local community and neighboring communes. Such a situation took place in the Ostrowice commune, which, after 70 years of existence, was liquidated on January 1, 2019, due to insolvency and relatively high debt. Meanwhile, the communes which 'absorbed' Ostrowice (i.e. the communes of Złocieniec and Drawsko), needed external support, mainly to implement investments. That bankruptcy of an LGU in Poland does not have to be the last one – and is certainly no exception in Central and Eastern Europe. The problem with insolvent communes also occurred in the Czech Republic and Slovakia, mainly due to implementation of high-capital investments (Hrůza, Novotná, 2017).

The aim of this study was to determine the financial situation of various levels of local government units during the COVID-19 pandemic in comparison to previous years. This is a research article that focuses on the identification of spatial connections within the financial situation of LGUs. The added value of this paper is the presentation of research results at individual levels of data aggregation (i.e. voivodships, poviats, communes). Usually, this type of research is limited to the assessment of the financial situation of a selected level of local government units, such as: only communes (Bieniasz et al., 2013), or a selected voivodship (Standar, 2017). Similarly, assessments of the financial situation or debt of LGUs usually focus on a specific voivodship (Dziekański, Leśna-Wierszołowicz, 2019) or a commune (Mrówczyńska-Kamińska et al., 2011), or selected communes, e.g. in the West Pomeranian Voivodeship (Zioło, 2011). The study included the most important indicators of the financial situation of local government units at all levels (voivodships, poviats and communes). The authors used data from the Ministry of Finance. To achieve the aim of the study, the authors used one of the taxonomic methods – the TOPSIS technique.

The originality of the study is based not only on the fact that it compares LGUs' financial situation during COVID-19 and pre-COVID, but it was also conducted comprehensively and covered all communes, poviats and voivodeships in Poland in 2018-2020. There are still relatively few studies that take into account the COVID-19 period; in some studies, the authors purposefully omit that period. Although the first studies that take into account the pandemic

period can already be found, they focus on LGUs in other countries, such as Bulgaria (Karatova, 2020), or are theoretical (Permanasari et al., 2022). An interesting study on the finances of LGUs in the first year of the COVID pandemic in Poland is the study by Malinowska-Miciąg (2022). The author points out that the situation of individual LGUs was very diverse, and the negative effects of the pandemic were visible mostly in urban communes and cities with poviat rights. The author also stressed the fact that the total budget surplus in LGUs obtained in 2020 resulted primarily from a large decrease in capital expenditure and the government support for LGUs' investments.

Considering the above, it should be noted that the research presented in this article fit into the current debates on the impact of the COVID-19 pandemic on LGUs' situation.

2. The assessment of the financial situation and its importance for LGUs

Dziekański and Leśna-Wierszołowicz (2019) emphasized that the financial situation of communes (but it may be applied to all levels of LGUs) determines their effectiveness, as well as the ability to provide services and pay liabilities; it is also an element of competitiveness. The financial situation determines the development of LGUs, affects their independence and the ability to implement investments, and thus contributes to meeting the key needs of local communities. Additionally, knowing the financial situation makes it easier for LGUs to take strategic decisions, properly assess the state of public finances, and compare their financial situation with neighboring and similar units (Ślebocka, 2017).

Assessment of LGUs' financial situation is important not only in terms of ongoing control and prevention of LGU's liquidation, but also from the point of view of its further development. In the literature on the subject, one may find studies that prove that communes with a higher level of socio-economic development and better investment opportunities are more willing to incur investment expenditures (Tomal, Nalepka, 2018). Furthermore, the authors of the study claimed that the main determinant of the investment willingness of communes was their financial situation, which is important for their future developmen. The literature on the subject (especially in terms of financial situation assessments) is quite rich with studies on financial autonomy (Poniatowicz, 2015) and financial independence of LGUs (Mrówczyńska-Kamińska et al., 2011), which is closely related to their financial situation.

Zawora (2015) emphasized that the income and financial independence of rural communes is linked to the economic situation of the region and the country, i.e. external factors, which are independent of the direct activity of these units. In fact, the financial situation of LGUs may change from period to period; based on surveys carried out in 2016-2017 among 160 treasurers of selected communes, Wyszkowska (2018) stated that communes were increasingly dependent on government subsidies, which limited their independence. In turn, Filipiak (2010) emphasized the importance of financial liquidity of LGUs in times of crisis. He pointed out that

it depends on the value of income and liabilities, and it affects the level of investment expenditure.

Studies by many authors have emphasized that the financial situation of LGUs is changing. In 2009-2010, there was a noticeable trend of increasing indebtedness of communes and the risk of losing liquidity by some LGUs (Parlińska, 2014). Communes with a higher level of development were more prone to investing. This correlation was particularly visible in technical infrastructure investments. The main determinant of the commune's willingness to investment was their financial situation (Tomal, Nalepka, 2018). It should be noted that the development of LGUs would not be possible without investment projects. However, as emphasized by Jurewicz (2016), the process of creating local development seems impossible without the use of repayable sources of financing. This generates debt and increases the risk of over-indebtedness, which may lead to the loss of liquidity of LGUs. Jastrzębska (2018) noted that the typical causes of LGUs debts are: lack of operating surplus, loss of creditworthiness and/or problems with maintaining financial liquidity.

The budget reflects the current economic situation of an LGU (Mrówczyńska-Kamińska after Miszczuk et al. (2011). Therefore, financial situation assessments should be focused on the LGUs' budgets and their budget-related data.

The economic analysis of LGUs' financial situation (similarly to the economic analysis of enterprises) should be conducted through the prism of finance, mainly due to the fact that all income and expenses are expressed in monetary values (Bień, 2011). Various types of financial indicators are used to assess the financial situation. They usually focus on: income, expenses, creditworthiness, debt, financial liquidity, and level of investment expenses. As noted by Bal-Domańska (2018), one of the most important financial categories to be assessed in an analysis of the communal financial situation is income. It may be assessed as broken down into own revenues, subsidies and subventions, along with an assessment of the total income structure of the commune and its earning potential.

Assessment of the financial situation of an LGU is not an easy task. It may be further influenced by the choice of indicators. In the Czech Republic, the Ministry of Finance used an indicator called the Debt Service Indicator (DSI) to control the financial situation of LGUs; DSI values were calculated every year, and the indicator included EU subsidies. The credibility of the indicator was limited due to the fact that in the long term, in the absence of EU funds, the indicator values could quickly decrease (Čámská, 2013). Thus, the DSI helped in financial assessments only in the short term. It should also be emphasized that the assessment of the financial situation of LGUs based on the values of a single indicator is not optimal. By using many various indicators, the risk of erroneous assessment of the financial situation of LGUs as a result of indicator imperfections can be mitigated. As German researchers proved, the assessment of the financial situation (and more specifically: the cost effectiveness) may also be influenced by changes in the accounting of LGUs, e.g. introduction of accrual accounting method (Lampe et al., 2015).

3. Statistical material and research method

The study was based on the most important characteristics of the financial situation of LGUs at all levels (voivodships, poviats and communes) in 2018-2020. Apart from the Local Data Bank of the Polish Central Statistical Office (GUS), indicators for assessing the financial situation of LGUs developed by the Ministry of Finance were also used (Ministry of Finance, 2021); additionally, the authors used the share of investment expenditure in total expenditure. The study included 15 indicators (diagnostic features):

X_{1S} – share of current income in total income (%),

X_{2S} – share of own income in total income (%),

X_{3S} – share of operating surplus in total income (%),

X_{4S} – share of capital expenditure in total expenditure (%),

X_{5D} – the burden salaries and remuneration-derivatives on current expenditure (%),

X_{6S} – share of operating surplus and income from the sale of assets in total income (%),

X_{7S} – self-financing indicator,

X_{8S} – current transfers per capita (PLN/person),

X_{9S} – operating surplus per capita (PLN/person),

X_{10D} – total liabilities per capita (PLN/person),

X_{11D} – share of total liabilities in total income (%),

X_{12D} – burden of debt service on total income (%),

X_{13D} – burden of debt service on own income (%),

X_{14d} – share of due liabilities in total liabilities (%),

X_{15S} – share of investment expenditure in total expenditure (%).

The impact of each of these features on the analyzed phenomenon was also indicated by qualifying it to a set of features that stimulate development in a given area ('S' symbol) or destimulate it ('D' symbol). It should be noted that the majority of indicators are stimulants – they account for 60% of all indicators adopted for the study.

In order to classify the Polish LGUs according to their financial situation, one of the methods of multidimensional statistical analysis was used – the TOPSIS technique, which belongs to the multi-criteria decision-making methods (Yoon, Kim, 2017; Parida, Sahoo, 2013; Roszkowska, 2011; Zulqarnain et al., 2020; Ghose, 2021). It follows this order:

Step 1. The starting point is to define the matrix:

$$X = [x_{ij}] \tag{1}$$

where:

i – object number (i = 1, 2, ..., n),

j – diagnostic feature number (j = 1, 2, …, m),

x_{ij} – value of the j^{th} diagnostic feature for the i^{th} object.

Step 2. In order to ensure the comparability of variables, the initial values of diagnostic features are normalized according to the formula:

$$z_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{n} x_{ij}^2}} \tag{2}$$

where:

z_{ij} – value of the j^{th} normalized diagnostic feature for the i^{th} object.

Step 3. The values of normalized diagnostic features are weighted in order to obtain the following matrix:

$$V = [v_{ij}] = [w_j z_{ij}] \tag{3}$$

for:

$$\sum_{j=1}^{m} w_j = 1 \tag{4}$$

where:

w_j – the weight of the j^{th} diagnostic feature.

Step 4. For each normalized weighted diagnostic feature from the matrix (3), two reference points are determined, which indicate the Positive Ideal Solution and Negative Ideal Solution coordinates – pattern and anti-pattern:

$$v_j^+ = \begin{cases} \max\limits_i v_{ij} & \text{for stimulant} \\ \min\limits_i v_{ij} & \text{for destimulant} \end{cases} \tag{5}$$

$$v_j^- = \begin{cases} \min\limits_i v_{ij} & \text{for stimulant} \\ \max\limits_i v_{ij} & \text{for destimulant} \end{cases} \tag{6}$$

where:

v_j^+ – j^{th} coordinate of the Positive Ideal Solution,

v_j^- – j^{th} coordinate of the Negative Ideal Solution.

Step 5. For all objects, their Euclidean distances from the pattern and anti-pattern are calculated:

$$d_i^+ = \sqrt{\sum_{j=1}^{m}\left(v_{ij} - v_j^+\right)^2} \tag{7}$$

$$d_i^- = \sqrt{\sum_{j=1}^{m}\left(v_{ij} - v_j^-\right)^2} \tag{8}$$

where:

d_i^+ – Euclidean distance of the i^{th} object from the Positive Ideal Solution,

d_i^- – Euclidean distance of the i^{th} object from the Negative Ideal Solution.

Step 6. The value of the aggregate variable denoting the relative proximity of the i^{th} object to the Positive Ideal Solution is determined as the quotient:

$$R_i = \frac{d_i^-}{d_i^- + d_i^+} \tag{9}$$

where:

$0 \leq R_i \leq 1$.

The preferred object has the smallest distance from the pattern and simultaneously the greatest distance from the anti-pattern; in other words, it takes the highest value of the R_i coefficient.

Step 7. The linear ordering of the objects is made due to the non-increasing value of the aggregate variable (9).

Step 8. Division of objects into groups characterized by a similar financial situation:

$$Group\ I\text{:}\ \bar{R} + S(R) \leq R_i \leq 1 \tag{10}$$

$$Group\ II\text{:}\ \bar{\bar{R}} \leq R_i < \bar{R} + S(R) \tag{11}$$

$$Group\ III\text{:}\ \bar{R} - S(R) \leq R_i < \bar{R} \tag{12}$$

$$Group\ IV\text{:}\ 0 \leq R_i < \bar{R} - S(R) \tag{13}$$

4. Research results

Tables 1-3 show selected descriptive parameters ($\bar{x}$ – arithmetic mean, Vs (%) – coefficient of variation, As – asymmetry coefficient) which characterize the average degree of differentiation and asymmetry of the distribution of indicators at various levels of aggregation of LGUs in 2018-2020.

Table 1.
Selected descriptive parameters for indicators at various aggregation levels in 2018

Feature	Voivodeships			Poviats			Communes		
	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As
X_1	78.04	13.65	-0.35	88.46	8.17	-1.22	92.13	6.85	-1.74
X_2	44.96	41.60	0.74	34.50	27.06	0.83	37.43	34.49	0.58
X_3	15.71	32.26	1.55	6.95	109.65	-11.45	8.56	52.33	1.19
X_4	37.53	25.17	0.88	20.23	46.52	0.78	19.66	46.83	0.64
X_5	28.68	14.86	-0.57	61.26	10.93	-1.37	38.74	10.53	-0.52
X_6	16.24	33.03	1.44	7.73	99.47	-11.36	9.58	49.70	1.56
X_7	102.35	19.02	0.74	94.95	70.91	-5.86	94.47	112.77	25.43
X_8	154.95	39.08	-0.29	638.07	28.98	0.46	2663.93	21.98	0.19
X_9	70.83	40.82	2.68	76.05	107.74	-12.01	422.08	91.41	16.44
X_{10}	156.22	40.87	1.70	267.70	67.95	1.78	1129.98	70.88	2.23
X_{11}	36.00	46.68	1.54	23.43	64.68	2.12	23.45	62.61	0.72
X_{12}	6.04	46.66	0.38	3.35	102.44	8.31	3.91	71.22	2.73
X_{13}	14.45	54.30	2.38	10.28	106.32	8.94	11.78	84.85	3.16
X_{14}	0.07	319.99	3.72	0.59	1176.82	12.85	0.43	1124.52	18.86
X_{15}	20.38	13.56	1.66	19.80	24.28	0.37	19.45	47.20	0.65

Source: authors' own calculations.

Table 2.
Selected descriptive parameters for indicators at various aggregation levels in 2019

Feature	Voivodeships			Poviats			Communes		
	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As
X_1	77.72	13.42	-0.89	88.30	8.40	-1.26	91.62	6.65	-1.44
X_2	44.72	42.80	0.53	38.86	24.16	0.74	37.91	31.76	0.56
X_3	17.78	25.14	0.21	8.71	46.37	0.99	8.21	52.01	1.03
X_4	38.91	24.85	1.07	17.36	49.56	0.75	16.00	51.90	0.73
X_5	28.36	13.83	-0.93	62.31	10.10	-1.08	37.89	10.54	-0.58
X_6	18.14	25.24	0.07	9.06	44.45	1.02	9.08	48.51	1.36
X_7	106.44	14.29	0.55	142.21	67.83	5.97	130.09	92.91	9.55
X_8	173.31	42.76	-0.29	692.88	29.15	0.32	2952.62	19.60	0.21
X_9	88.31	29.44	1.64	105.32	43.12	0.55	449.84	94.56	19.83
X_{10}	163.28	40.82	1.27	273.28	70.24	1.84	1201.67	71.02	1.72
X_{11}	33.40	42.84	0.93	21.83	67.39	2.08	22.53	64.31	0.79
X_{12}	5.52	49.03	0.84	3.96	140.79	5.98	4.26	91.21	5.46
X_{13}	14.43	75.91	2.59	10.88	149.74	5.95	12.49	100.06	4.54
X_{14}	0.02	280.87	3.03	0.71	1124.62	12.26	0.58	1142.40	14.23
X_{15}	18.23	14.28	1.84	15.97	27.98	0.94	15.80	52.76	0.75

Source: authors' own calculations.

Table 3.
Selected descriptive parameters for indicators at various aggregation levels in 2020

Feature	Voivodeships			Poviats			Communes		
	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As	$\bar{x}$	Vs (%)	As
X_1	78.69	9.76	-0.08	86.19	9.46	-0.80	89.40	7.28	-1.28
X_2	44.16	35.13	1.09	39.18	23.80	0.81	39.65	27.23	0.55
X_3	19.89	24.31	0.08	7.79	50.25	1.25	7.81	50.91	0.98
X_4	36.97	19.76	-0.12	16.08	54.25	0.79	14.13	53.46	1.00
X_5	26.92	15.67	-0.54	63.38	10.30	-1.19	36.62	10.86	-0.61
X_6	20.35	23.07	0.06	8.38	51.73	1.85	8.74	46.66	1.34
X_7	122.69	20.22	1.26	170.25	53.04	2.58	190.40	222.82	20.30
X_8	216.57	39.51	-0.36	795.82	29.10	0.24	3254.44	17.90	0.20
X_9	110.49	24.14	0.08	106.76	52.84	2.89	468.55	70.17	7.06
X_{10}	167.31	40.70	0.88	271.13	73.58	1.64	1240.00	73.47	1.65
X_{11}	30.17	43.32	1.49	19.13	70.45	1.82	20.98	67.51	0.95
X_{12}	4.68	62.26	1.33	2.87	98.21	6.18	3.53	92.83	8.08
X_{13}	11.94	80.79	2.06	7.84	109.79	6.23	9.61	107.71	10.52
X_{14}	0.02	280.87	3.03	0.42	1351.94	17.02	0.45	1316.43	16.12
X_{15}	16.16	12.87	0.87	14.08	28.54	0.74	13.93	54.11	1.01

Source: authors' own calculations.

The analysis of parameter values shows the following regularities:

- for four indicators: share of current income in total income (X_{1S}), current transfers per capita (X_{8S}), operating surplus per capita (X_{9S}), total liabilities per capita (X_{10D}) – their average level increased when the level of aggregation was lower. As for the share of investment expenditure in total expenditure (X_{15S}), it was possible to notice decreasing values on lower levels of aggregation;
- as for the share of investment expenditure in total expenditure ($X15S$), it was possible to notice decreasing values on lower levels of aggregation, as well as its decrease year-to-year: in 2018, the values of this indicator for the voivodship, poviat and commune, were 20.4, 19.8 and 19.5 respectively, while in 2020 it was 16.2, 14.1 and 13.9;
- diversification of the values of the majority of indicators (except X_{1S}, X_{5S}) at various levels of aggregation was above 20%; the highest value of most of the characteristics was for poviats;
- the lowest diversification was found in voivodships, poviats and communes in terms of the share of current income in total income (X_{1S}), and the highest – in terms of the share of due liabilities in total liabilities (X_{14D});
- the distribution of the majority of indicators at all levels of aggregation was characterized by a strong or very strong right-sided asymmetry, which is unfavorable from the point of view of stimulant indicators, as it means the predominance of objects whose level of indicators is below average;

- only the distribution of the share of current income in total income X_{1S} was characterized by a strong left-sided asymmetry, which means that for most poviats and communes (the distribution for voivodships in 2020 was close to symmetrical), the share of current income in total income was above average;
- the situation was different for destimulant indicators ($X_{10D} - X_{14D}$), where the distribution of indicators with right-hand asymmetry is desirable;
- an exception was noted: the burden of salaries and remuneration-derivatives on current expenditure X_{5D} was characterized by at least moderate (for voivodships and communes) and strong (for poviats) left-sided asymmetry, which means that for the majority of the objects the burden of salaries and remuneration-derivatives on current expenditure was above the average.

Using the fifteen diagnostic features presented in the sub-chapter above, TOPSIS synthetic measures (equal weights of $w_j = \frac{1}{15}$ were used) were determined, which characterized the financial situation in individual LGUs in 2018-2020; based on these values, four typological groups were distinguished (Tab. 4-6). Based on these groups, it may be seen that some voivodeships in the analyzed period changed their typological group, e.g. Podlasie Voivodeship from Group 4 in 2018 transferred to Group 2 in 2020. Meanwhile, the Greater Poland Voivodeship shifted from Group 2 in 2018 to Group 4 in 2020.

There were also certain changes in the structure of groups of poviats; the share of poviats belonging to Group 1 and 2 increased, i.e. their financial situation was above the average for all poviats. Only in two voivodships (Kuyavia-Pomerania and West Pomerania) there was a decrease in share in the best groups (Group 1 and 2) and an increase in the worst groups (Group 3 and 4).

During 2018-2020, the share of communes from Groups 3 and 4 in the total number of communes remained the same and amounted to approx. 48%. However, the number of communes in these groups slightly changed: the share of communes in the third group in 2020 increased by 1.1 percentage point, as compared to 2018, while the share of communes belonging to Group 4 in that period remained at the same level. The situation varied among voivodships. In 2020, (Table 6) in nine voivodeships there was a predominance of communes from Groups 3 and 4, in which the level of synthetic measures was below the average. This applied in particular to communes in the following voivodeships: Lower Silesia (62.2%), Warmia-Masuria (57%), Lesser Poland (57%), Lubusz (56.3%), Pomeranian (54.6%), West Pomeranien (53.6%), and Greater Poland (51.8%). In previous years, the communes classified in Groups 3 and 4 were present in seven voivodeships.

Table 4.
Typological groups of LGUs in 2018

LGU	Voivodeships		Poviats				Communes			
	R_i	Group	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 3	Group 4
Lower Silesia	0.6601	3	0	13	10	3	4	65	90	6
Kuyavia-Pomerania	0.6936	2	1	12	5	1	2	75	59	4
Lublin	0.5887	3	0	13	7	0	1	117	86	5
Lubusz	0.6116	3	0	6	5	1	1	37	41	1
Łódź	0.6765	2	0	13	8	0	3	96	75	0
Lesser Poland	0.6715	3	0	9	10	0	0	78	99	2
Masovia	0.7429	2	0	25	12	0	5	185	117	2
Opole	0.7310	2	0	4	7	0	1	30	39	0
Subcarpathia	0.8202	1	0	17	4	0	3	85	64	4
Podlasie	0.3710	4	0	13	1	0	2	72	40	1
Pomerania	0.7203	2	0	10	6	0	0	56	62	1
Silesia	0.6788	2	0	15	1	1	2	88	54	4
Świętokrzyskie	0.7483	2	0	9	4	0	0	39	61	1
Warmia-Masuria	0.6556	3	0	14	5	0	3	33	74	4
Greater Poland	0.7017	2	1	13	16	1	1	119	99	3
West Pomerania	0.7125	2	2	11	5	0	9	54	43	4

Source: authors' own calculations.

Table 5.
Typological groups of LGUs in 2019

LGU	Voivodeships		Poviats				Communes			
	R_i	Group	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 3	Group 4
Lower Silesia	0.6468	3	1	14	9	2	8	48	97	12
Kuyavia-Pomerania	0.5309	4	0	12	7	0	1	76	59	4
Lublin	0.6086	3	0	11	8	1	3	106	94	6
Lubusz	0.2889	4	0	5	5	2	2	36	36	6
Łódź	0.6357	3	0	10	11	0	8	104	61	1
Lesser Poland	0.7233	2	1	8	9	1	1	80	93	5
Masovia	0.7266	2	3	19	14	1	12	177	116	4
Opole	0.7762	2	0	3	7	1	0	30	38	2
Subcarpathia	0.8178	1	0	18	3	0	4	81	64	7
Podlasie	0.7623	2	0	10	3	1	6	69	33	7
Pomerania	0.7621	2	0	5	10	1	6	55	55	3
Silesia	0.6791	3	0	7	9	1	7	79	60	2
Świętokrzyskie	0.8103	1	0	11	2	0	0	49	49	3
Warmia-Masuria	0.6643	3	0	8	11	0	3	42	61	8
Greater Poland	0.7227	2	4	14	12	1	8	111	102	1
West Pomerania	0.7284	2	1	11	6	0	9	35	62	4

Source: authors' own calculations.

Table 6.
Typological groups of LGUs in 2020

LGU	Voivodeships		Poviats				Communes			
	R_i	Group	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 3	Group 4
Lower Silesia	0.6728	3	1	10	14	1	5	57	97	6
Kuyavia-Pomerania	0.7799	2	0	15	3	1	2	80	57	1
Lublin	0.5804	3	0	10	10	0	2	108	97	2
Lubusz	0.3254	4	0	4	6	2	2	33	41	4
Łódź	0.6742	3	0	8	12	1	3	98	71	2
Lesser Poland	0.7604	2	0	9	10	0	1	76	95	7
Masovia	0.7458	2	1	20	15	1	1	184	119	5
Opole	0.8567	1	1	3	6	1	0	35	34	1
Subcarpathia	0.8093	2	4	11	6	0	1	79	72	4
Podlasie	0.7614	2	0	11	2	1	3	74	37	1
Pomerania	0.7461	2	2	8	5	1	2	52	64	1
Silesia	0.6665	3	1	6	10	0	1	83	62	2
Świętokrzyskie	0.8388	1	1	8	4	0	2	48	49	2
Warmia-Masuria	0.6771	3	0	10	9	0	2	47	63	2
Greater Poland	0.5605	4	0	12	18	1	2	105	115	0
West Pomerania	0.8237	2	0	9	9	0	1	50	57	2

Source: authors' own calculations.

5. Conclusions

Based on the completed study, the following conclusions may be drawn:

- the lower the level of local government, the greater the share of current income in total income, current transfers per capita, operating surplus per capita and total liabilities per capita,
- the improvement in the self-financing indicator may suggest a low level of implemented investments, which was confirmed by the relatively low values of the share of investment expenditure in total expenditure,
- a negative trend was observed: the share of investment expenditures in total expenditures decreased at all levels of local government units, especially in communes and poviats.

The pandemic period did not clearly affect the financial situation of LGUs – it was rather a time of continued trends of changes of the indicators used in the study. Luckily, despite the pandemic, a decrease in the share of debt in total income was recorded at all levels of LGUs, despite a slight decrease in the share of the operating surplus in total income in poviats and communes. Based on the analysis of voivodeships, it may be concluded that in 2020 (in comparison to previous years), the financial situation of the Greater Poland voivodship deteriorated the most, while the financial situation of the Podlasie voivodship improved the most.

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